

A NEW SPECIES OF *TRIOXYS* (HYMENOPTERA: BRACONIDAE) FROM CALIFORNIA

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Abstract. — *Trioxys californicus* NEW SPECIES is described from a single specimen reared from *Eucallipterus tiliae* (L.) in California. A diagnosis to differentiate the new species from *T. curvicaudus* Mackauer is provided. The new species is considered indigenous to California, and the parasitization of *E. tiliae* to represent a new association; its original host is unknown.

Key Words. — Insecta, Hymenoptera, Braconidae, *Trioxys californicus* NEW SPECIES, *Eucallipterus tiliae*, California, new association

The linden aphid, *Eucallipterus tiliae* (L.) (Homoptera: Drepanosiphidae) (= Callaphididae) has a widespread Palearctic distribution (Blackman & Eastop 1984, Ivanovskaya 1977, Zhang et al. 1990). It was first recorded from North America in 1886 (Davis 1909), and from California in 1909 (Davidson 1909). The aphid can be a pest on urban shade trees, and was the target of a classical biological control program in 1970, resulting in the establishment of *Trioxys curvicaudus* Mackauer (Hymenoptera: Braconidae: Aphidiinae) in California (Olkowski et al. 1982).

A subsequent study (Zuparko & Dahlsten 1995) found several primary parasitoids attacking the aphid in northern California, including an undescribed *Trioxys* species. A description of this species is presented below.

TRIOXYS CALIFORNICUS STARY & ZUPARKO, NEW SPECIES

Type. — Holotype, female: CALIFORNIA. *SOLANO Co.*: Vallejo, 28 Jul, 1993, R. L. Zuparko, reared from *Eucallipterus tiliae* on *Tilia cordata* Miller; deposited in Essig Museum of Entomology, University of California, Berkeley. Left metatarsal segments partially missing, left flagellar segments missing; right antenna mounted on card.

Description. — *Female* (holotype). Body length 1.9 mm. Antennae 13-segmented, as long as head, thorax and first 2 abdominal tergites together, filiform, not thickened towards apex. Length of flagellar segment I $2.5 \times$ medial width, with adpressed hairs subequal to one-half width of segment; 4 rhinaria. Flagellar segment II like segment I but with 5 rhinaria. Flagellar segments III–IX as wide as I or II, slightly shorter, with hairs subequal to one-half width of segment; 4 rhinaria each. Flagellar segment X as wide as segments III–IX; 3 rhinaria. FW with metacarpus equal to one-half pterostigma length. Radial vein long, extending distally beyond apex of metacarpus. Propodeum smooth, with sparse longitudinal rugosities, sparse hairs. Tergite I narrow, length 1.5 times width at spiracles, prominent spiracular tubercles situated anterior to midpoint of segment, smooth with sparse hairs. Genitalia (Fig. 1): Ovipositor sheaths slightly arcuate, 2 long hairs on ventral margin. Prongs medium-sized, slightly arcuate; 3 long semi-erect hairs on dorsal margin, their length about $3.5 \times$ diameter of prongs at their base; 2 semi-erect hairs on ventral margin, their length distinctly shorter than hairs on dorsal margin;

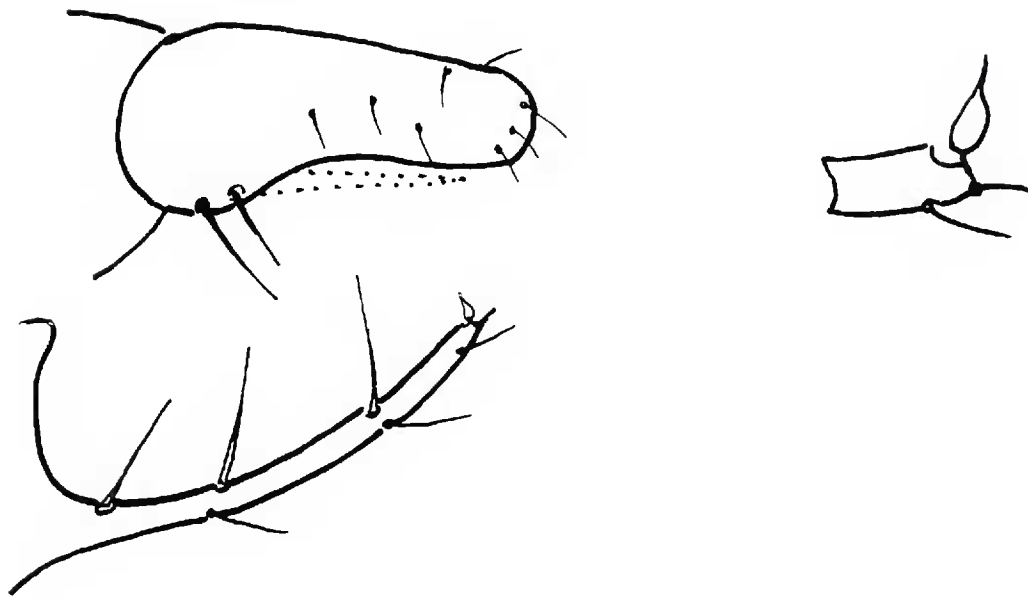


Figure 1. *Trioxys californicus* female genitalia. Lateral aspect (left). Detail of prong apex (right).

apex of prongs with 1 semi-perpendicular claw-shaped bristle on dorsal side and 1 simple bristle on ventral side. Head black, mouthparts brown. Antenna scape and pedicel yellow-brown ventrally, dark brown dorsally; flagellar segments III–IX dark brown, segments I–II somewhat lighter. Thorax black. Wings subhyaline, venation light brown. Tegulae dark brown. Legs yellow, apices of tarsi and metatibiae posteriorly, infuscated. Abdomen dark brown-black; tergite I yellow, basal area of tergite II lighter. Ovipositor sheaths light brown; prongs dark brown basally, light brown apically.

Male. — unknown.

Diagnosis. — *Trioxys californicus* most closely resembles *T. curvicaudus*, but the former can be readily distinguished by its 13-segmented antennae, shorter metacarpus and shorter ovipositor prongs (the latter has 11-segmented antennae, a metacarpus that extends about as far as the radial vein, and prongs which extend well past the ovipositor sheaths). The new species also tends to have slightly darker coloration—the ovipositor prongs of *T. curvicaudus* are yellow, the scape, pedicel and first two flagellar segments are bright yellow, and the legs are uniformly yellow-brown with no defined dark patches.

Distribution. — Known only from California.

Discussion. — Although it was reared from an introduced species, we consider *T. californicus* is indigenous to California. There is no evidence of a similar species in the western Palearctic fauna (Stary 1978, 1988), which is apparently fairly well known [*T. mosei* Mescheloff & Rosen (1993) is the only new species of *Trioxys sensu lato* (*Trioxys* + *Binodoxys*) described from there since 1978]. In contrast, a genus (*Cristicaudus*) and 9 species from this group have been described from Mexico and the United States since 1977 (Stary & Remaudiere 1977, 1982, Stary & Marsh 1982, Stary 1983), indicating a New World fauna that is comparatively less well-known.

There is also no evidence that closely links *T. californicus* to *E. tiliae*. From 1991–93, over 1100 *Trioxys* were reared from *E. tiliae*, but only one *T. californicus* was reared (Zuparko & Dahlsten 1995). Therefore, we consider that the incidence of *T. californicus* on *E. tiliae* represents a new association, and the parasitoid's natural host remains unknown.

Material Examined. — See types.

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